

WHAT IS CLAIMED IS:

1. A device for generating a virtual installation model as an image of a real installation, comprising:

a first memory for storing picture data of the real installation;

a second memory for storing information data of installation

5 components of a component library;

a third memory for storing the virtual installation model; and

an evaluation-and-control-unit for comparing the information

data of the installation components with the picture data of the real

installation, for identifying identified components in the picture data as

10 respective ones of the installation components, for deriving hypotheses

regarding the identified components in the picture data, and for generating the

respective identified ones of the installation components in the virtual

installation model.

2. The device of claim 1, wherein the evaluation-and-control-unit is configured to perform an image analysis of data selected from the group

consisting of the picture data, the information data of the installation

components of the component library, current state data of the virtual

5 installation model, and additional information data provided by a user.

3. The device of claim 1, wherein the evaluation-and-control-unit is configured to perform an image analysis of at least one of geometric

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information of the picture data and the installation components of the component library.

4. The device of claim 1, further comprising a display device to display three views, wherein a first view of the three views displays the real installation based on the picture data; wherein a second view of the three views displays the information data of the installation components of the component library; and wherein a third view of the three views displays the virtual installation model.

5. The device of claim 1, wherein the evaluation-and-control-unit is configured to control a building-up process of the virtual installation model, in which at least one of the installation components selected from the component library is dragged into a screen section that is assigned to display the picture data of the real installation.

6. The device of claim 5, wherein the evaluation-and-control-unit is configured to evaluate geometric properties of the picture data in order to reconcile the selected and dragged installation component with the identified installation components identified in the picture data of the real installation, and wherein, after a successful reconciliation, the selected and dragged installation component is assigned to a respective one of the identified installation components.

7. The device of claim 1, wherein the evaluation-and-control-unit is configured to evaluate structural information of the installation components, in order to assign the installation components to the picture data of the real installation.

8. The device of claim 7, wherein the structural information comprise geometric and functional information.

9. The device of claim 4, wherein the evaluation-and-control-unit is configured to add, after successful identification of at least one of the installation components, the respective identified installation component to the third view displaying the virtual installation model.

10. The device of claim 1, wherein the evaluation-and-control-unit is configured to control an automatic function, wherein the automatic function automatically selects and positions the installation components, and wherein the automatic function adds the automatically selected and positioned
5 installation components to the virtual installation model.

11. The device of claim 1, further comprising: at least one of a digital camera, a digital video-camera, digitized photographs and data of a CAD-system to generate the picture data of the real installation.

12. The device of claim 1, wherein the first memory stores, as the
5 picture data, different perspectives of the real installation.

13. A method for generating a virtual installation model as an image of a real installation, comprising:

(a) generating picture data of the real installation;

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(b) comparing information data of installation components of a
5 component library with the picture data of the real installation to identify at
least one of the installation components in the picture data as an identified
installation component; and

(c) adding the identified installation component to the virtual
installation model.

14. The method of claim 13, further comprising: image-analyzing data
of the installation components of the component library, wherein information
selected from the group consisting of data from the picture data, data of the
installation components, and information supplied by a user are evaluated.

15. The method of claim 14, wherein, in the image-analyzing step,
geometric information of at least one of the picture data and the installation
components of the component library are evaluated.

16. The method of claim 13, further comprising displaying three views
on a display unit, wherein a first view of the three views displays the picture
data of the real installation, wherein a second the view of the three views
displays the installation components of the component library, and wherein a
5 third view of the three views displays the virtual installation model.

17. The method of claim 13, further comprising:

selecting one of the installation components from the
component library; and

dragging the selected installation component into a screen area
5 that displays the real installation.

18. The method of claim 14, wherein the image-analyzing step further comprises:

dragging one of the installation components into a screen area that displays the real installation;

5 evaluating properties of the dragged installation component;

matching the evaluated installation component with a component in the picture data of the real installation; and

assigning the matched installation component and the component in the picture data to each other.

19. The method of claim 18, wherein the properties comprise geometric properties.

20. The method of claim 14, wherein the data of the installation components of the component library comprise structural information; and wherein the image-analyzing step further comprises:

evaluating the structural information; and

5 assigning the installation components to the picture data in accordance with the evaluating step.

21. The method of claim 16, wherein the identified installation component is added to the third view displaying the virtual installation model.

22. The method of claim 13, further comprising:

under automated control, selecting at least one of the installation components from the component library;

under automated control, positioning the selected installation
5 component in the picture data of the real installation; and
under automated control, evaluating the positioned installation
component.

23. The method of claim 13, wherein the picture-data of the real
installation are generated by at least one of a digital camera, a digital video-
camera, digital photographs, and data of a CAD-system.

24. The method of claim 13, further comprising: generating picture
data of different perspectives of the real installation; and, under automated
control, assigning the identified installation component to the picture data of
each of the different perspectives.

25. A device for generating a virtual model of a facility, comprising:
a first storage to store picture data of components of the facility;
a second storage to store predefined representations of the components
of the facility;

5 a processing unit to compare the components of the facility in the
picture data with the predefined representations of the components of the
facility in order to identify identified components as respective ones of the
components of the facility;
a third storage to store the identified components; and
10 a display unit to display the picture data of the components of the
facility, to display at least one of the predefined representations of the
components of the facility, and to display the identified components

26. The device of claim 25, further comprising at least one of a digital camera, a digital video-camera, digital photographs, and data of a CAD-system to generate the picture data of the components of the facility.

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